Remarks/Arguments

In response to the Rejection mailed June 25, 2004, applicants have amended claims 70 and 79, present new claims 85-87 and the following remarks.

Claims 70 and 79 were rejected under 35 USC 103 as being unpatentable over one of four Garger et al patents in view of Francon et al. The examiner considered Garger et al to teach extracting a virus from plant tissue by homogenizing plant tissue, pH adjustment and heat treatment, centrifuging to remove debris and precipitating the virus product. The examiner also urges that precipitation with chloroform and butanol are also taught. While recognizing that lyophilizing the aqueous phase containing the virus is not taught, Francon et al is cited to show that lyophilization of viruses to stabilize them is a known technique. Thus the examiner urges adding a lyophilization step to the Garger et al process would have been obvious. This rejection is respectfully traversed.

Neither Garger et al patent uses or suggests using an organic solvent of any sort on a purified virus product. The three passages in Garger et al referring to any organic solvent are found in column 3, lines 23+, lines 47+ and column 9, lines 56+. These situations are referring to the process described in Gooding et al. Indirectly, the examiner apparently considers it obvious to use such techniques in the Garger et al protocols.

Garger et al completely avoided using an organic solvent and criticize the use of solvents as impractical for the virus purification. Note column 3, lines 52-53,"...*using solvents in a large-scale purification is problematic.*" And column 9, lines 56+, "*Plant protein and peptide isolation procedures in the prior art frequently use solvents such as n-butanol, chloroform and carbon tetrachloride to eliminate chloroplast membrane fragments, pigments and other host related materials. Such methods are not easily practiced on a large and commercially valuable scale since these methods often require designing special equipment...*" Garger et al designed their virus purification technique to avoid the organic solvents used in earlier virus purifications from plant materials. Therefore, it would be illogical to add organic solvent extraction to the taught Garger et al process and Garger et al even teaches away from such an addition.

Even if one were to combine the solvent extractions of Gooding et al into the Garger et al method, one obtains a different method from that claimed. The materials being treated with organic solvents are quite different. As stated in column 3, lines 23-33 of Garger et al, leaves are homogenized, n–butanol added, debris centrifuged, and then virus precipitated with PEG. If one were to combine this teaching with Garger et al, the n-butanol would be added to the homogenized leaves sometime before centrifugation in order to remove plant material as stated in column 3, lines 49-50 of Garger et al. Particularly note that the "green juice" contains these types of unwanted plant materials, much of which are removed by the claimed steps of, and similar steps in Garger et al of, pH adjustment, heat treatment and centrifuging. In any event, the n-butanol would be added sometime before virus precipitation with PEG by any suggestion in the Gooding et al part of Garger et al because Garger et al does not use an organic solvent at all. This modification does not yield the present invention.

The presently claimed invention adds an organic solvent after the plant material has been centrifuged and after virus precipitation with PEG. Applicants are using organic solvents for the final steps of virus purification, not for early extraction of unwanted material from ground up plant leaves as taught by Gooding et al and repeated by Garger et al. There is no suggestion to perform the process steps in a different order and particularly when the primary purposes for the solvent (according to col. 3, line 49-50 of Garger et al) is moot for the claimed process.

As a separate reason for patentability, the claimed method precipitates virus with polyethylene glycol (PEG) and NaCl (salt). Garger precipitates virus with PEG only. Virus precipitation with any solution containing NaCl is **not** taught by **any** of the 5 references applied to the rejection. Precipitation by a salt is not within the teachings of any Garger et al or Francon et al. Use of a "mixture of polyethylene glycol and NaCl" is certainly not taught. It will be appreciated by the examiner that a precipitation step using no salt versus a substantial salt concentration is capable of precipitating different materials.

In view of the amendments and comments above, the rejection has been overcome. Reconsideration, withdrawal of the rejection and early indication of allowance are

respectfully requested. If any issues remain, the examiner is encouraged to telephone the undersigned.

If needed, applicants petition for an extension of time under the provisions of 37 CFR 1.136(a) for sufficient time to accept this response. The commissioner hereby is authorized to charge payment of any fees under 37 CFR § 1.17, which may become due in connection with the instant application or credit any overpayment to Deposit Account No.500933.

Respectfully submitted,

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